

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
APPLICATION FOR LETTERS PATENT

**Methods And Arrangements For Providing Non-Modal  
Reminder Information In A Graphical User Interface**

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1      **RELATED APPLICATION**

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3      B1      This application claims priority from U.S. Provisional Application Serial  
4      No. 60/171,212, filed December 15, 1999 (Applicant's Docket Number  
5      149398.1, entitled "Password Hint Reminder Balloon", express mailing label  
6      number EL425348716US), the disclosure of which is incorporated by reference  
7      herein.

8      **TECHNICAL FIELD**

9      This invention relates to computers and software, and more particularly to  
10     methods and arrangements for selectively providing reminder information, in a  
11     non-modal manner, within a graphical user interface (GUI) computing  
12     environment.

13     **BACKGROUND OF THE INVENTION**

14     Computer systems and other resources are typically protected from  
15     inadvertent use and/or otherwise unauthorized access through the use of user  
16     names and passwords. The passwords are meant to be secret. Those entering the  
17     correct user name and password are allowed to access the protected computing  
18     resources, data, etc.

19     A user may be required to remember several different user names and/or  
20     passwords. For example, a user may have a company defined user name at work  
21     that is associated with a password of their choosing. The same user may have  
22     another user name and password for use with a home network, the Internet, an  
23     intranet, a World Wide Web (WWW) page, or the like. Keeping track of these  
24     different identifiers can be difficult.

1           Consequently, a recent trend calls for the inclusion of a user defined  
2 password reminder or hint that can be manually requested by the user whenever  
3 he/she cannot remember the password. Thus, for example, if the user's password  
4 is "Rover", then the password reminder may be "The name of my first pet when I  
5 lived in Michigan". Hence, the user could request this hint when trying to  
6 remember "Rover".

7           One of the drawbacks to this type of password reminder is that the user  
8 needs to actively initiate the reminder. Another drawback is that the reminder  
9 information is usually displayed in a modal dialog format that retains the focus of  
10 the graphical user interface until acknowledged or otherwise explicitly shutdown.  
11 Thus, users typically need to ask for the hint and then acknowledge the hint. This  
12 tends to waste time and may frustrate certain users.

13           It would be advantageous to have improved methods and arrangements that  
14 automatically display reminder information at appropriate times, without requiring  
15 any additional user input or interfering with the user's ability to interact with the  
16 graphical user interface.

17           **SUMMARY OF THE INVENTION**

18           The present invention provides improved methods and arrangements that  
19 automatically display reminder information at appropriate times, without requiring  
20 any additional user input and without significantly interfering with the user's  
21 ability to interact with the graphical user interface.

22           Thus, for example, the above stated needs and others are met by a method  
23 that includes displaying at least one user input field within a graphical user  
24 interface, and automatically displaying reminder information associated with the  
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1 user input field through a non-modal mechanism within the graphical user  
2 interface. The method may further include monitoring user input activities and  
3 automatically displaying the reminder information associated with the user input  
4 field through the non-modal mechanism after a defined period of user input  
5 inactivity. For example, if a user is unable to remember a password, then the  
6 method provides an automatic non-intrusive way for the reminder information,  
7 which the user previously entered when setting up their password, to be displayed.  
8 A tip balloon is one type of a non-modal display mechanism that does require the  
9 user to respond and does not interfere graphically and/or operationally with the  
10 ongoing graphical user interface supported process.

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12 **BRIEF DESCRIPTION OF THE DRAWINGS**

13 A more complete understanding of the various methods and arrangements  
14 of the present invention may be had by reference to the following detailed  
15 description when taken in conjunction with the accompanying drawings wherein:

16 Fig. 1 is a block diagram depicting an exemplary computer system suitable  
17 for use in the inputting and the outputting of user reminder information.

18 Fig. 2 is an illustrative representation of user reminder information being  
19 displayed in a non-modal manner using a computer system, for example, as in Fig.  
20 1.

21 Fig. 3 is flowchart depicting a process for inputting and outputting user  
22 reminder information in a non-modal manner using a computer system, for  
23 example, as in Fig. 1.

1      **DETAILED DESCRIPTION**

2      As shown in Fig. 1, computer 20 includes one or more processors or  
3      processing units 21, a system memory 22, and a bus 23 that couples various  
4      system components including the system memory 22 to processors 21. Bus 23  
5      represents one or more of any of several types of bus structures, including a  
6      memory bus or memory controller, a peripheral bus, an accelerated graphics port,  
7      and a processor or local bus using any of a variety of bus architectures.

8      The system memory includes read only memory (ROM) 24 and random  
9      access memory (RAM) 25. A basic input/output system (BIOS) 26, containing the  
10     basic routines that help to transfer information between elements within computer  
11     20, such as during start-up, is stored in ROM 24.

12     Computer 20 further includes a hard disk drive 27 for reading from and  
13     writing to a hard disk, not shown, a magnetic disk drive 28 for reading from and  
14     writing to a removable magnetic disk 29, and an optical disk drive 30 for reading  
15     from or writing to a removable optical disk 31 such as a CD ROM, DVD ROM or  
16     other optical media. The hard disk drive 27, magnetic disk drive 28 and optical  
17     disk drive 30 are each connected to bus 23 by applicable interfaces 32, 33 and 34,  
18     respectively.

19     The drives and their associated computer-readable media provide  
20     nonvolatile storage of computer readable instructions, data structures, program  
21     modules and other data for computer 20. Although the exemplary environment  
22     described herein employs a hard disk, a removable magnetic disk 29 and a  
23     removable optical disk 31, it should be appreciated by those skilled in the art that  
24     other types of computer readable media which can store data that is accessible by a  
25     computer, such as magnetic cassettes, flash memory cards, digital video disks,

1 random access memories (RAMs) read only memories (ROM), and the like, may  
2 also be used in the exemplary operating environment.

3 A number of program modules may be stored on the hard disk, magnetic  
4 disk 29, optical disk 31, ROM 24, or RAM 25, including an operating system 35,  
5 one or more application programs 36, other program modules 37, and program  
6 data 38. A user may enter commands and information into computer 20 through  
7 input devices such as keyboard 40 and pointing device 42. Other input devices  
8 (not shown) may include a microphone, joystick, game pad, satellite dish, scanner,  
9 or the like. These and other input devices are connected to the processing unit 21  
10 through an interface 46 that is coupled to bus 23.

11 A monitor 47 or other type of display device is also connected to bus 23 via  
12 an interface, such as a video adapter 48. In addition to the monitor, personal  
13 computers typically include other peripheral output devices (not shown) such as  
14 speakers and printers.

15 Computer 20 can operate in a networked environment using logical  
16 connections to one or more remote computers, such as a remote computer 50.  
17 Remote computer 50 may be another personal computer, a server, a router, a  
18 network PC, a peer device or other common network node, and typically includes  
19 many or all of the elements described above relative to computer 20. The logical  
20 connections depicted in Fig. 2 include a local area network (LAN) 51 and a wide  
21 area network (WAN) 52. Such networking environments are commonplace in  
22 offices, enterprise-wide computer networks, intranets, and the Internet.

23 When used in a LAN networking environment, computer 20 is connected to  
24 the local network 51 through a network interface or adapter 156. When used in a  
25 WAN networking environment, computer 20 typically includes a modem 54 or

1 other means for establishing communications over the wide area network 52, such  
2 as the Internet. Modem 54, which may be internal or external, is connected to bus  
3 23 via interface 46. In a networked environment, program modules depicted  
4 relative to the personal computer 20, or portions thereof, may be stored in the  
5 remote memory storage device. It will be appreciated that the network  
6 connections shown are exemplary and other means of establishing a  
7 communications link between the computers may be used.

8 Reference is now made to Fig. 2, which is an illustrative representation of  
9 user reminder information being displayed in a non-modal manner using computer  
10 20. As shown, a non-modal, tip balloon or hint balloon 116 is selectively  
11 displayed within a graphical user interface (GUI) display 100 on display 47 in an  
12 attempt to assist a user attempting to logon to computer 20. Here, the user is  
13 reminded that his/her password is a pet's name. In this example, it is assumed that  
14 computer 20 has been set-up to accommodate the applicable reminder information,  
15 as will be described in subsequent sections.

16 Since there are several pieces of information presented to the user within  
17 GUI display 100, the following description will walk-through an exemplary user  
18 logon process to highlight various aspects.

19 As shown, the user is initially prompted to select a user identifier through  
20 initial prompt 102. The user can respond by viewing one or more user identifier  
21 prompts 104. Thus, if computer 20 is configured to support a plurality of users,  
22 then a plurality of user identifier prompts 104 can be displayed. In this example,  
23 only one user identifier prompt 104 is shown.

24 Within user identifier prompt 104, there is at least one selectable user area  
25 106. Here, user identifier prompt 104 includes two different selectable user areas

1       106a-b. Selectable user area 106a is a graphical, iconic, or like representation  
2       associated with the user. For example, selectable user area 106a may include a  
3       picture of the user. Selectable user area 106b is a textual identification associated  
4       with the user. Thus, for example, the user's name may be displayed in selectable  
5       user area 106b.

6              Once the user has selected a user identifier, then GUI display 100 further  
7       provides the user with a password prompt 108 associated with at least one user  
8       input field 110. In this example, password prompt 108 and input field 110 are  
9       displayed within user identifier prompt 104 following selection of either selectable  
10      user area 106a or selectable user area 106b.

11             At this stage in the login process, the user will need to input their password  
12       in input field 110 and confirm the input by hitting ENTER on their keyboard 40,  
13       or by graphically selecting (e.g., clicking) "go" button 112.

14             If, for some reason, the user is unable to remember their password, then the  
15       user can manually request a "hint" using a manual hint area 114. Manual hint area  
16       114 may include text, graphics, etc. When the user selects manual hint area 114,  
17       reminder information 116, which was previously entered by the user during set up,  
18       is displayed in a non-modal manner. For example, in Fig. 2, a hint balloon 118 is  
19       presented as pointing to manual hint area 114. Hint balloon 118 is non-modal in  
20       that it does not interfere with the user's ability to view input field 110 and does not  
21       require user acknowledgement in some manner. Instead, hint balloon 118 appears  
22       when summoned by the user and then automatically disappears from GUI display  
23       100 when the user inputs information through input field 110.

1 Since the manual hint requesting process described above requires users to  
2 actively solicit a hint, this may lengthen the login process. Thus, in accordance  
3 with certain implementations a passively activated hint process is also provided.

4 In this example, hint balloon 118 is displayed without the user manually  
5 requesting it whenever the user appears to be having trouble remembering their  
6 password. Thus, for example, if the user has failed to input information into input  
7 field 110 for a given amount of time, then hint balloon 118, or other like non-  
8 modal display mechanism, is activated to show the user reminder information 116.  
9 Accordingly, a timing mechanism can be implemented within the logon process  
10 that monitors the user inputs and selectively activates hint balloon 118.

11 By way of example, in certain implementations the timing mechanism is  
12 preferably set to at least about three (3) seconds. In other implementations, the  
13 timing mechanism is set to about ten (10) seconds. In still other implementations,  
14 the timing mechanism is set to about twenty (20) seconds. Once the user begins to  
15 input their password, then hint balloon 118 goes away.

16 With this in mind, Fig. 3 is flowchart depicting a process 200 for inputting  
17 and selectively outputting user reminder information 116.

18 Step 202 is performed as part of the user's set-up process, wherein the user  
19 is typically permitted to input their password, and confirm their password. The  
20 set-up process can support, for example, access to an operating system. In step  
21 202, the user is also permitted to input reminder information 116. Certain users  
22 may decide not to input reminder information 116. For these users, there is no  
23 manual or automatic displaying of hint balloon 118.

24 For users that do input reminder information 116, manual and automatic  
25 displaying of the reminder information 116 through hint balloon 118, for example,

1 is available. Thus, per step 204, during subsequent logon the user is provided with  
2 at least one user input field 110. In step 206, it is determined if the user may  
3 benefit from the reminder information. This can be accomplished as described  
4 above by monitoring the user's inactivity with respect to the input field. Next, in  
5 step 208, the reminder information is displayed using a non-modal technique, such  
6 as, for example, hint balloon 118.

7 In step 210, the reminder information 116 is no longer displayed to the user.  
8 Thus, for example, as the user begins providing an input through input field 110  
9 then, according to step 210, hint balloon 118 is no longer displayed.

10 Process 200 may also be configured to be recursive by returning to step 206  
11 from step 210. In this manner, if a user is distracted or hesitating at some point  
12 while entering their password, then hint balloon 118 can be displayed/re-  
13 displayed.

14 Although some preferred embodiments of the various methods and  
15 arrangements of the present invention have been illustrated in the accompanying  
16 Drawings and described in the foregoing Detailed Description, it will be  
17 understood that the invention is not limited to the exemplary embodiments  
18 disclosed, but is capable of numerous rearrangements, modifications and  
19 substitutions without departing from the spirit of the invention as set forth and  
20 defined by the following claims.

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